Catherine (Yang) Tian

cath22tian@gmail.com | (412) 974-2096 | Pittsburgh, PA 15219 | Toronto, ON M2N 0G9

Profile Summary

- Accomplished Software Engineer with years of experience delivering highly visible and complex projects such as **full-stack applications**, **NFT marketplaces**, and **machine learning** within fast-paced environments like ZipRecruiter.
- Engaged collaborator with strong interpersonal skills, able to influence and align multiple **cross-functional teams**.
- **Programming Languages:** Java, Python, JavaScript, TypeScript, Scala, Golang, SQL, HTML, CSS
- **Frameworks & Libraries:** React, Redux, Node.js, Express.js, Next.js, Spring Boot, Gin, Vert.x, Samza, Socket.IO, React Native
- **Databases:** MySQL, PostgreSQL, MongoDB, DynamoDB, Firebase, Cloud Firestore, CosmosDB, Redis
- **Dev Tools:** Git, GitHub, GitLab, Maven, Webpack, Yarn/NPM, Jenkins, Jest, React Testing Library, Pandas, Numpy, Matplotlib, Keras, JUnit, JaCoCo, GitHub Actions, Kafka, Samza, YARN, Google Vertex AI, Google App Engine, Zeppelin
- **Cloud & DevOps:** AWS (ECR, CloudWatch, EBS, S3, Cognito, SES, Lambda, API Gateway, Secrete Manager, EKS, EC2), Azure, Terraform, Helm, Kops, Docker, Kubernetes, GCP, ACR, GKE, AKS

Education

Carnegie Mellon University M.Sc.Information System Management (Highest Distinction) Pittsburgh, PA 2022-2024
University of Waterloo B.Math. Statistics (Distinction) Waterloo, ON 2016-2021

Professional Experience

ZipRecruiter Software Engineer (intern)

Santa Monica, CA May 2023 - Aug. 2023

- Collaborated within a pluridisciplinary team to develop a robust banner management system, integrating with the legacy infrastructure, and enhancing system scalability, delivering clean and scalable code in **TypeScript** on **React**.
- Developed an **HTTP** and **gRPC** service with **Express** and **Node.js**, enabling Static Site Generation with **Next.js, Golang**, and **Server-Side Rendering**, resulting in an increase in performance efficiency.
- Used **Webpack** to compile the code, supporting non-React frontends with considerable compilation time improvement.
- Deployed the service using **Kubernetes** and **Docker** on **AWS EC2**, exposing the banner **API** using **Nginx Proxy** for other frontend apps across the company, configured **AWS** infrastructure using **Terraform**.
- Conducted comprehensive **testing** of the banner management system, including functional and sequence tests, to ensure banners display correctly and in the right order, achieving a test coverage of **100%**.

Fintelics Full-Stack Developer

Toronto, ON Aug. 2021 - Aug. 2022

- Developed cross-device applications for an NFT marketplace and **Web3 social media platforms**, to enhance user engagement and increase in active users by over **40%**.
- Engineered the frontend using **TypeScript** with **React** and **Redux**, integrated responsive design features using **Tailwind CSS** and styled-components, and facilitated backend connectivity using **Axios**.
- Constructed the backend architecture with **Node.js** and **Express**, developed **REST APIs**, and managed data migration and manipulation using **Mongoose** for **MongoDB** and **Sequelize** for **PostgreSQL**, while also working with a **Firebase** backend (Google Cloud Functions, Firestore, Realtime Database).
- Implemented user authentication and authorization systems for over **10**,**000 users** utilizing **AWS Cognito** and **SES**.
- Developed a software cryptocurrency wallet system using **ethereum**.**js**, **AWS Lambda**, **AWS API Gateway**, and **AWS Secret Manager,** enabling seamless management of digital wallets within the application.
- Created a mobile payment solution with **React Native** and **Google APIs**, integrating **Apple** and **Android Pay** capabilities, which significantly improved the payment process.
- Built a real-time notification and user chat system using **Socket.IO**, supporting **1000s** messages per hour.
- Deployed a static website on **AWS S3** and managed the **Node**.**js** backend deployment using **Docker** and **AWS EC2**, with image storage in **AWS ECR** and file management via **AWS S3**, achieving optimal system reliability and uptime.
- Led a development team of three to expand a NFT marketplace web app, integrating it with the OpenSea platform through **OpenSea APIs** and **IPFS**, resulting in a **40**% increase in user activity.
- Integrated transaction capabilities using **web3**.**js** and enhanced user authentication with MetaAuth and MetaMask.
- Achieved automation of the testing process using **Jest** and **React Testing Library**, which enhanced the product quality by achieving a test coverage of **95%.**

Loblaw Companies Limited Data Science Analyst (Intern)

Brampton, ON Jan. 2020 - Apr. 2020

- Implemented data cleaning and feature engineering on over **10 million** records with approximately **3**,**000** features from **Teradata**, using **Spark SQL**, **MLlib**, and **Spark DataFrame** on **Databricks**, employing dimensionality reduction techniques (**autoencoder, T-SNE, PCA**), contributing to the construction of a robust machine learning pipeline.
- Developed and tuned a machine learning pipeline using **PySpark**, employing algorithms like **Random Forest**, **XGBoost**, **LightGBM**, and **LSTM**, which provided business insights and pricing recommendations to vendors, estimated to generate a **$500 million** profit uplift.

Projects Experience

Twitter Web Server

Jan. 2024 - Apr. 2024

- Deployed a microservices-based web service using **Docker**, **AWS ECR**, **Kubernetes** on **AWS EC2**, automated with **Terraform** and **Helm Chart**, enhancing deployment efficiency.
- Enhanced web-service architectures with **load balancing** (ALB, NLB), **Ingress**, **container**, and **auto-scaling** techniques to support high web traffic; improved service frameworks by migrating to **Vert.x** from **Gin** and **Spring Boot**.
- Developed a **Kafka Producer** and a Java application to send messages to **Kafka** topics on a remote **AWS Samza** cluster (**EMR**, **EC2**), utilizing **YARN** for effective monitoring and debugging, resulting in enhanced traceability.
- Implemented cross-cloud **ETL** processes on **Azure Databricks** using **Apache Spark**, **spark SQL**, and **Scala** for a **1TB** data set, streamlined **CI/CD** with **GitHub Actions**, and improved database performance and scalability with migrations to **DynamoDB** and configurations on **AWS EKS.**

WeChat-like

Jan. 2024 - Feb. 2024

- Utilized **Java Spring Suite** (Spring Boot, Spring WebSocket, Spring Security, Spring JPA, Spring Cloud Ribbon), **Maven**, **STOMP**, and **Redis Pub/Sub** to build real-time chat synchronization for a WeChat-like application with the microservices architecture for login, chat, and profile services.
- Containerized services using **Docker** and **Dockerfile**, managed **Kubernetes** objects with **Helm Charts**, and implemented multi-cloud deployments on **GCP** and **Azure**, enhancing scalability and reliability through strategic use of **GCR**, **ACR**, **GKE**, **AKS**, **Ingress-Nginx Controller**, **HPA**, and **Azure Front Door**.
- Automated **CI/CD** processes with **GitHub Actions** and managed cloud infrastructure with **Terraform**.